

CITY OF EUREKA  
URBAN WATER MANAGEMENT PLAN  
2005 UPDATE

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## I. PLAN ADOPTION AND PUBLIC PARTICIPATION

The California Urban Water Management Planning Act (AB 797, 1983) of the California Water Code (Div. 6, Part 2.6) requires that each urban water supplier prepare, adopt and update (once every five years) an Urban Water Management Plan (UWMP).

The City of Eureka has therefore prepared this 2005 update of its UWMP to be submitted to the California Department of Water Resources to fulfill these requirements.

The City has encouraged public participation in its UWMP planning process since the first plan was developed in 1985. As required by law, public meetings were held on the 1985, 1990, 1997, and 2000 plans. Additional public input was sought during the development of the water shortage contingency plan in December 1992.

For this 2005 update of the UWMP, a public hearing was held on December 20th, 2005. Prior to the hearing, notice of the time and place of the hearing was published in the local newspaper for two successive weeks (Exhibit A). After receiving public hearing input, the plan was adopted by the Eureka City Council on 12/20/05, (Exhibit B).

## II. INTRODUCTION

This Urban Water Management Plan (UWMP) for the City of Eureka (Eureka) has been prepared in compliance with Assembly Bill 797 of the 1983-1984 Regular Session of the California Legislature (Water Code Section 10610 et. seq.).

Eureka is located in Humboldt County, California (Figure I-1). The area typically experiences a high annual rainfall. Certain regions in the area may experience more than 100 inches of precipitation annually. Historically, water supply in the area has not been a problem and it is not foreseen to be a limiting factor in the future.

Eureka currently supplies water to approximately 9,600 direct customers. Eureka also supplies water to Humboldt Community Services District (HCSD). The number of services supplied with water by Eureka has remained relatively constant.

Eureka purchases water from the Humboldt Bay Municipal Water District (District). The District presently maintains facilities sufficient to deliver twenty one million gallons of water per day (21 MGD) to domestic water customers.

## III. AGENCY COORDINATION

Preparation of this Urban Water Management Plan (UWMP) was performed in coordination with the Humboldt Bay Municipal Water District, the regional water wholesaler in our area. Regularly scheduled planning meetings were held with other water purveyors that, like Eureka, purchase water from the Humboldt Bay Municipal Water District. Copies of the Eureka UWMP will be provided to cities as coordinating documents.

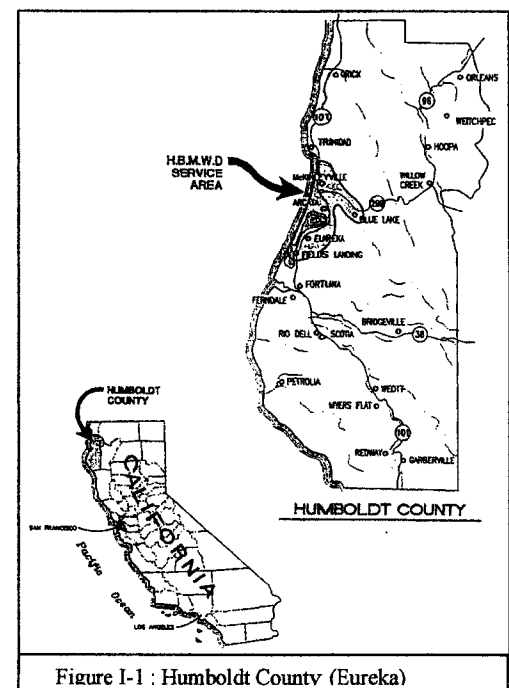


Figure I-1 : Humboldt County (Eureka)

Interest has been shown by the combined Humboldt Bay area water purveyors in the preparation of future UWMP documents as a regional planning tool. The joint preparation of future UWMP by a single entity in conjunction with subscriber agencies could be an efficient method of complying with the law and provide local water agencies with a coordinated single document addressing the water needs of the region. This will be explored further with the other agencies.

**Coordination with Appropriate Agencies (Table 1)**

Agency	Participated In Plan Development	Commented On the Draft Plan	Attended Public Meetings	Contacted For Assistance	Received Copy of Draft Plan	Notice of Intention To Adopt
City of Eureka	X	X	X	X	X	X
City of Arcata	X	X	X	X	X	X
Humboldt CSD	X	X	X	X	X	X
McKinleyville CSD	X	X	X	X	X	X
County of Humboldt				X	X	
Dept Water Resources				X	X	

#### **IV. DESCRIPTION OF SERVICE AREA**

##### **Location**

The City of Eureka is located in Humboldt County and services municipal water users within the existing City Limits and provides limited water service outside incorporated limits with Local Agency Formation Commission approval. The incorporated City Limits include 17.71 square miles of land area.

##### **Population**

The U.S. Census Bureau 2000 data for the City of Eureka is 26,128. The City has utilized a 1% growth rate for population projections. Slow growth is not unexpected owing to the fact the City Limits are surrounded on three sides by lands developed to urban densities and supplied with full urban services.

**Population – Current and Projected (Table 2)**

Year	2000	2005	2010	2015	2020	2025	2030
Eureka Service Area	26,128	27,461	28,862	30,334	31,880	33,506	35,215

##### **Climate**

According to climatic records, rainfall at Eureka averages approximately 40 inches per year. The Humboldt County watersheds contributing to water supplies in the Mad River average approximately 70 inches per year, with some mountainous areas recording in excess of 100 inches of rainfall per year. The weather may be described as a Mediterranean climate varying not more than 10 degrees throughout the year.

Table 3 includes climatic data for Eureka and for the weather data gathering station located in Forest Glen. The Forest Glen data has been included because it is the closest weather gathering station near the Ruth area where our source water originates.

**Climate (Table 3)**

Month	Forest Glen Avg. ETo (Inches)	Forest Glen Avg. Rainfall (Inches)	Forest Glen Min -Max (Fahrenheit)	Eureka Avg. Rainfall (Inches)	Eureka Avg. Temp (Fahrenheit)
Jan	1.9	12.5	26.4 - 45.1	6.75	54.5
Feb	2.2	9.8	29.5 - 51.5	5.35	55.5
Mar	3.7	9.2	30.7 - 56.0	5.19	55.4
Apr	4.8	4.5	32.9 - 63.5	2.97	56.3
May	5.3	1.6	37.8 - 72.9	1.65	58.6
Jun	5.7	0.6	43.3 - 82.5	0.60	60.7
Jul	5.6	0.2	46.4 - 91.4	0.13	61.8
Aug	5.3	0.4	45.3 - 90.6	0.35	63.0
Sep	4.2	1.1	41.0 - 84.4	0.77	63.0
Oct	3.4	3.4	35.5 - 70.2	2.66	61.1
Nov	2.4	9.2	31.7 - 53.3	5.68	58.0
Dec	1.9	11.4	28.3 - 45.2	7.00	54.9

### **Sources and Supply**

The City of Eureka purchases water from a wholesaler, Humboldt Bay Municipal Water District. The District's source of water is the Mad River. The District pumps water from the gravel and sand beds beneath the Mad River by four Ranney wells in the riverbed. The Department of Health Services (DHS) has classified the District's water supplied to domestic customers as groundwater. The District is in the process of conducting a Groundwater Study to be used to generate a Groundwater Management Plan (GMP).

According to Humboldt Bay Municipal Water District documents, the District currently has water rights to divert 75 million gallons per day (MGD) from the Mad River, which converts to 84,000 acre-feet per year (AFY). The District also owns and operates the R.W. Matthews Dam impounding water in Ruth Lake. The District manages releases from the dam to ensure sufficient supplies downstream throughout the year.

The City of Eureka maintains water rights to Mad River water equivalent to 6,499 AFY (5.8 MGD). Under the agreement between the District and The City of Eureka, the deliveries from the District to the City are considered to be deliveries of the City's water, emanating from its own water rights not those of the District. Deliveries to the City in excess of the City's water rights are considered deliveries of the District's water.

## **V. WATER SUPPLY RELIABILITY**

As stated previously, the District has water rights to 230 acre-feet per day (75 MGD) from the Mad River. This amounts to 8% of the average annual runoff in the watershed. According to District documents, other user water rights and required flows for fish and wildlife amount to less than 5% of the average annual runoff. As this suggests, there would have to be a large shortfall in annual runoff in the watershed for the water supply to be affected. Even if faced with shortages in rainfall and runoff, the storage provided by R.W. Mathews Dam should allow the District to maintain water supplies.

Ruth Lake begins the water year on October 1<sup>st</sup> with an average of 31,000 acre-feet of water, 64% of its 48,030 acre-foot capacity. Most rainfall in the area occurs between November and April. In every year but one since 1969, there has been at least one large storm during this period, bringing 4 to 9 inches of rain over a seven day period. This is almost always sufficient to fill the reservoir to capacity. The average reservoir volume on May 1<sup>st</sup> (at the end of the usual rainy season) is 47,700 acre-feet, over 99% of capacity. This storage allows the District to supplement low flows until the rains begin in the fall. Seasonal or climatic shortages affecting water supplies could only be anticipated after two consecutive rainy seasons with severely reduced rainfall and runoff shortages (well below 50% of normal). This has not occurred in the history of the District.

## **VI. WATER SUPPLY RELIABILITY COMPARISON**

### **Average Water Year**

During an average water year, the area around Ruth Lake receives 70 inches of rainfall. 173,000 acre-feet of water flow into the Humboldt Bay Municipal Water District's reservoir via the Mad River, and the runoff from the Mad River watershed above the District's diversion facilities near Arcata is over 1,000,000 acre-feet.

### **Single Dry Water Year**

According to the District, the water year between October of 1976 and September of 1977 was the driest year recorded by the District, far drier than any other. Rainfall in the Ruth area was 29 inches, or 41% of normal. Flows into the reservoir totaled 26,000 acre-feet or 15 % of normal and the run off from the Mad River watershed above the District's diversion facilities 165,000 acre-feet or 16% of normal. The average reservoir volume for the water year was 21,000, which is 44% of capacity and 52% of the normal average volume. The reservoir was drawn to 27% of its capacity at the end of the water year. Fall storms arrived in November of 1977 and quickly refilled the reservoir.

This water year was severely dry throughout the entire State of California, and was a very exceptional year in the District's history. In 32 years of record keeping, it was the only year in which rainfall was less than 50% of normal. It was also the only year in which the reservoir was never filled to capacity. Total flows into the reservoir via the Mad River were half the amounts of the next driest year. Runoff from the watershed and average reservoir volume were each 60% of the next driest year.

### **Multiple Dry Water Years**

According to District records, the three water years between October 1989 and September 1992 represent the driest multiple years recorded for the District. Rainfall for this period averaged 42 inches per year, 60% of normal. Of these three water years, the driest year for rainfall was water year 1990/1991 with 37 inches (53% of normal).

Flows into Ruth Lake via the Mad River averaged 69,000 acre-feet per year, 40% of normal. The runoff from the Mad River watershed above the District's diversion facilities was 371,000 acre-feet, or 37% of normal. Despite the diminished rainfall and runoff, rainfall was more than sufficient to refill the reservoir each year. Reservoir capacity during this period averaged 77% of capacity, or 91% of normal.

### **Three Year Minimum Water Supply**

According to District records, using the data from the multiple dry years previously discussed, water years 1989/1990 through 1991/1992, the minimum water supply volumes for the next three years would be 252,000 acre-feet, the District's full allocation of 75 MGD. As concluded by the District, even multiple years of reduced rainfall will not necessarily affect water supplies. More crucial than total rainfall is the occurrence of moderate to heavy storms in the late winter or early spring. One or two of these storms bringing 3 to 5 inches of rain is sufficient to fill the reservoir to capacity.

### **Unreliable Water Sources**

Based on the Humboldt Bay Municipal Water District's information discussed above, the District's sole source of water, the Mad River, has been very consistent. Based on this consistency there is no demonstrated need to replace or supplement this source of Eureka's water supply.

### **Transfer or Exchange Opportunities**

The City of Eureka has vested water rights to 17.8 acre-feet per day (5.8 MGD) of water from the Mad River. The Humboldt Bay Municipal Water District delivers 5.8 MGD by contract to the City. Conservative estimates for Eureka's water consumption of 10.9 acre-feet per day in the year 2010 is well below their vested water rights. The City may transfer or exchange water in excess of consumer needs but within its water rights with the District, if needed. The City of Eureka is not seeking short nor long term transfer or exchanges of water to meet our anticipated consumption demand.

## **VII. WATER USE**

Four tables have been prepared in conjunction with this section on Water Use. The data are presented in units of acre-feet per day (AF/D), acre-feet per year (AF/Y), and gallon per day (GPD).

Table 4 indicates a history of decreases in water consumption per capita. This coupled with an increase in multiple family dwellings, and an increase in the number of services point toward a pattern of increasing in water consumption efficiency per capita. The favorable citizen involvement in achieving reduced water consumption during the times of repair to our system (replacement of twenty million gallon storage reservoir) has resulted in decreased purchases of water. It is felt that with this heightened citizen involvement and the storage reservoir being brought back on line, per capita water use will remain stable. Table 5 presents projected water purchase data for the next twenty five years. In the year 2000 an average 11.3 AF/D was purchased by Eureka, with that number decreasing to a predicted 10.9 AF/D in the year 2010. Table 6 demonstrates the past, current and projected future demand for water by sector. Humboldt Community Services District (HCSD) is the City of Eureka's only wholesale customer. The quantity of water sold in the past and projected future sales to HCSD is presented in Table 7. The City's population has increased by 12 percent during the past ten years therefore we have utilized a 1% growth rate for our calculations.

**City of Eureka, Historical Per Capita Consumption Data (Table 4)**

YEAR	Number of Services	Average Water Delivered (AF/D)	Per Capita Consumption (GPD)
1989	9,244	12.3	148.14
1990	9,161	11.2	146.00
1991	9,230	10.5	134.55
1992	8,886	11.3	135.93
1993	8,899	11.7	140.01
1994	8,990	10.8	128.80
1995	9,238	11.2	128.42
1996	9,399	11.6	134.64
1997	9,423	11.8	137.50
1998	9,397	10.8	125.35
1999	9,458	10.9	127.14
2000	9,550	11.3	129.54

**Predicted Water Purchase (Table 5)**

Year	Predicted Water Purchase (AF/Y)	Predicted Average Water Purchase (AF/D)
2005	3,778	10.3
2010	3,971	10.9
2015	4,174	11.4
2020	4,387	12.0
2025	4,611	12.6
2030	4,847	13.3

**Past, Current and Projected Water Deliveries (Table 6)**

Year	Water Use Sector	Single Family	Multi-Family	Commercial	Industrial	Total
2001	# of accounts	7,829	620	1,009	140	9,598
	Deliveries AF/Y	1,958	418	831	889	4,096
2005	# of accounts	7,883	670	988	119	9,660
	Deliveries AF/Y	1,861	442	857	227	3,386
2010	# of accounts	8,285	705	1,038	124	10,152
	Deliveries AF/Y	1,956	465	902	237	3,560
2015	# of accounts	8,708	740	1,091	129	10,668
	Deliveries AF/Y	2,056	490	947	247	3,740
2020	# of accounts	9,153	778	1,146	134	11,211
	Deliveries AF/Y	2,161	515	996	260	3,932
2025	# of accounts	9,619	818	1,205	139	11,781
	Deliveries AF/Y	2,270	540	1,046	275	4,131
2030	# of accounts	10,109	859	1,266	144	12,378
	Deliveries AF/Y	2,386	568	1,100	290	4,344

**Sales to Other Agencies AF/Y (Table 7)**

Water Distributed	2000	2005	2010	2015	2020	2025	2030
HCSD	771	215	237	247	260	275	290

## **VIII. SUPPLY AND DEMAND COMPARISON PROVISIONS**

In the history of Eureka, the demand for water has never exceeded available supplies. There have been no deficiencies in water supply for the City's water source. The current vested water right from the Mad River is 6,499 AF/Y or 17.8 AF/D of which approximately 63 percent was used in 1995. The Humboldt Bay Municipal Water District provides the above-mentioned water to the City. The contract was negotiated in 1999. Estimates for Eureka's consumption based on the current growth rate indicate water purchases increasing to 12 AF/D in the year 2020. As a result, water purchases for Eureka are expected to remain below their current water rights. Discussions with the District indicate there will not be a problem for them to meet Eureka's current and anticipated water needs. Additional or expanded supplies for the City of Eureka above the 17.8 AF/D vested water right are not projected to be necessary for the future.

## **IX. WATER DEMAND MANAGEMENT MEASURES**

The City of Eureka is currently in the process of promulgating a Demand Management Measure (DMM) program to comply with the Water Code Section 10631 (f) and (g) requirements. It is the City's intention to propose a DMM program to the City Council for approval for implementation during the 2006-2007 fiscal year.

### **DMM 1. Water Audits for Residential Customers**

The City of Eureka has meters on all sources and services. The City is proposing to initiate residential water use surveys for residential customers. The audits will involve reviewing water use records, showing customers how to check for leaks utilizing their meters, recommending appropriate low flow devices that may be installed in the residence. The water usage records for the residence can be compared to evaluate the effectiveness of the survey and any change in water use resulting from leak detection or low flow device installation.

### **DMM 2. Plumbing Retrofit**

The City utilizes Section 402.0 of the California Plumbing Code in the review of building permits for new construction and building rehabilitation. According to the provisions of this Section, all water closets, urinals, and flushometers installed after 1994 shall use no more than 1.6 gallons of water per flush, urinals being limited to 1 gallon per flush. Exceptions exist for replacement of plumbing fixtures in historically designated structures. This Section also provides for aerators on kitchen faucets which limit water flow rates to 2.5 gallons per minute. In addition, during the next budget process the City will propose a program to provide retrofit kits to a fixed number of residential customers each year to promote water use reduction. The water consumption of customers receiving a retrofit kit can be compared to evaluate the program effectiveness.

### **DMM 3. Distribution System Water Audits, Leak Detection, and Repair**

The City has conducted water audits and leak detection and repair on our distribution facilities since 1990. A leak detection program is currently in place whereby individual citizens are notified of

excessive water use and a biannual check of the system's main lines is performed. The City compares the amount of water sold to the amount of water purchased to determine if there are significant system leaks. A difference greater than 10 % between water sold and purchase values indicates that leak detection and identification in the system needs to be performed. The City's staff attends workshops designed to train them in water management practices.

#### **DMM 4. Metering with Commodity Rates**

Eureka has recently implemented a water fee increase. All customers are on meters and are billed by volume used. Total water sales can easily be compared to determine if the increased water fee has impacted overall water use and promoted water conservation.

#### **DMM 5. Large Landscape Water Conservation Program and Incentives**

According to the water use records maintained by the City of Eureka, there are no separately metered large landscapes (greater than 3 acres) within City Limits. Owing to the City's ability to consistently operate within its water budget, the City has not adopted a Landscape Water Conservation Ordinance. The City maintenance staff has implemented cultural practices resulting in conservation efforts. In the Parks Division, drip irrigation is regularly used and retrofitted into City landscapes. Automatic irrigation devices are installed for efficient use of irrigation water, and smaller shrubs and trees needing less water are utilized. Planting schedules for City projects incorporate native species and species suitable to our area which require very little additional watering given the amount of rainfall regularly received in our area.

#### **DMM 6. High-efficiency Washing Machine Rebate Program**

During the next budget process, the City will propose a program to annually fund a fixed number of rebates to customers that purchase high-efficiency washing machines. The purpose of the program will be to encourage citizens to purchase washing machines that use less than 6 gallons per cycle. A follow up survey will be used to determine if the customer has observed a reduction in their water bill.

#### **DMM 7. Public Information**

The City has established a web page to promote customer water use awareness and water conservation. In addition, the City will create a promotional campaign that targets reduction of water use by producing a water awareness and conservation brochure to make available to the public.

#### **DMM 8. School Education**

The City is planning to create a school information program. The intention of the program is to have water use aware children grow up to be water conserving adults. The program will involve providing water conservation education material for teachers to use to incorporate water use awareness into the curriculum. These materials include posters, a classroom lesson guide with activities for teachers, and a video.

#### **DMM 9. Commercial, Industrial and Institutional Water Conservation**

Water Audits are available from private contractors to those businesses interested in reducing water consumption. The water audits will involve making recommendations on the installation of appropriate water conservation devices. A follow up water consumption survey will be used to determine if the recommended water conservation devices resulted in an observed reduction in their water bill.

#### **DMM 10. Wholesale Agency Assistance**

The City is a wholesale supplier of potable water to Humboldt Community Services District (HCSD). The City plans to work with HCSD to provide support and assist with implementing the Demand Management Measures for their customers.

#### **DMM 11. Conservation Pricing**

The City of Eureka's water billing pricing structure consists of a service charge for water availability and quantity use charges. There are no lifeline or inclining use charges associated with our pricing structure at this time. The City has recently implemented a water fee increase which should provide an incentive to reduce water usage.

#### **DMM 12. Conservation Coordinator**

The Public Works Director for the City of Eureka has the responsibility of the Conservation Coordinator. Budgetary priorities do not warrant the establishment of a dedicated Water Conservation Coordinator at this time. Such duties are currently delegated to appropriate individuals by the Department Head as the person responsible for the overall oversight and implementation of the water conservation programs.

#### **DMM 13. Water Waste Prohibition**

The City of Eureka has programs designed to alert water customers when excessive water use is detected. This is designed to help customers detect leaks and keep water costs down to end users. Punitive measures have not been incorporated into ordinances for water wasters.

#### **DMM 14. Ultra Low Flush Toilet Replacement**

The City of Eureka enforces the provisions of the California Plumbing Code for new construction and rehabilitation. During the next budget process, the City will propose an Ultra Low Flush Toilet rebate program to annually fund a fixed number of rebates to customers upon purchase. After program implementation, a follow up survey would be used to determine if the customer has observed a reduction in their water bill.

### **X. PLANNED WATER SUPPLY PROJECTS AND PROGRAMS**

As previously discussed, the City currently doesn't utilize the full allocation of its water rights. Therefore, no projects are planned or necessary to meet projected water use demands.

#### **Development of Desalinated Water**

Development and utilization of desalinated water is deemed unnecessary at this time.

### **XI. CURRENT AND PROJECTED SUPPLY**

As previously stated, the City acquires its water from the District on the City's vested water rights. The City's anticipated water demand information presented in Table 5 was provided to the District to satisfy

Water Code section 10631 (k). Table 8 presents the estimated water usage predicted for the future as well as the City's existing vested water right quantity. Table 9 is wholesale supply reliability data provided by the District.

**Wholesaler Planned Sources of Water Available AF/Y (Table 8)**

Wholesale Sources	2010		2015		2020		2025		2030	
	Existing	Planned	Existing	Planned	Existing	Planned	Existing	Planned	Existing	Planned
HBMWD	6,499	3,971	6,499	4,174	6,499	4,387	6,499	4,611	6,499	4,847

**Supply Reliability AF/Y (Table 9)**

Mad River Source (HBMWD)	Normal Water Year	Single Dry Water Year	Multiple Dry Year 1	Multiple Dry Year 2	Multiple Dry Year 3
Acre-Feet	1,002,000	165,000	571,800	371,300	283,500
% of Normal	100%	16%	57%	37%	28%

## **XII. WATER SHORTAGE CONTINGENCY PLAN**

The drought of 1976/77 is the only period in which a declared water emergency on the North Coast has been issued. The City Council adopted Resolution No. 6774 on May 17, 1977, declaring a water shortage emergency. To deal with this and future water shortage situations, a voluntary organization of municipal customers of the Humboldt Bay Water District, Drought Committee, was formed (see Exhibit C). This formal group was organized to deal with common water problems relating to potential water shortages and terms and conditions of water service by the District under separate contracts.

The Eureka City Council entered into an association of Municipal Customers for the purpose of coordinating and planning for the potential of water shortages in the territory served by the Humboldt Bay Municipal Water District. A copy of Resolution 6784 has been included in this Urban Water Management Plan (Exhibit D).

In order to satisfy the requirements of California Assembly Bill 11 (AB11, 1991) as implemented by the California State Department of Water Resources and following 5 years of lower than average rainfall during the years 1986 through 1991, the "drought committee" implemented a Water Shortage Contingency Plan. This contingency plan was implemented by the City of Eureka as an amendment to the 1990 Urban Water Management Plan.

The Humboldt Bay Municipal Water District contingency plan is a five stage rationing system based on the percent capacity of the Ruth Lake storage reservoir. The Ruth Lake reservoir is the only storage reservoir for the District. The contingency plan was developed using 1976/77 as the worst case on record. During the year, the Mad River runoff totaled 25% of average, rainfall in the Ruth Lake reservoir basin was 45% of historical average and Ruth Lake was at its lowest draw down in history - 23% of total volume.

**The five stage water shortage contingency plan will be implemented as follows:**

Stage I	Controlled Release from Storage	Is in effect at all times to assure best use of water in storage.
Stage II	Optimizing Available Supply	Triggered when the storage reservoir falls to 65% of capacity, and Ruth area rainfall is 70% or less of historical rainfall. This stage may also be triggered by natural disaster or supply contamination and implements voluntary water conservation.
Stage III	General Reduction	Consideration to trigger Stage III when Ruth Lake reaches 40% of capacity and rainfall is 60% or less of historical average. All wholesale and retail customers will be required to reduce usage by 10-15% over the previous two-year average.
Stage IV	Usage Allocations	Consideration to trigger Stage IV when Ruth Lake reaches 30% of capacity and rainfall is 50% or less of historical average. All wholesale and retail customers will be required to reduce usage by 16-30% over the previous two-year average.
Stage V	Rationing	Consideration to trigger Stage V when Ruth Lake reaches 25% of capacity and rainfall continues at 50% or less of historical average. All wholesale and retail customers will be required to reduce usage up to 50% as may be determined by the rate of use of available supply and weather conditions.

The City of Eureka receives water on a wholesale basis from the Humboldt Bay Municipal Water District under long term contract. During a catastrophic event or in a drought year, the Public Works Department will prepare for shortages by:

1. Reviewing the status of stored water supplies and weather forecasts. The City maintains 20 million gallons of water in storage. If a water shortage is imminent all storage facilities will be maintained at maximum levels. A new reservoir was put into service in 2005. It is anticipated the amounts if water in storage will be adequate to offer uninterrupted service to our customers with conservation measures in effect.
2. In the event the District declares a Stage III alert, the City will take steps to reduce or eliminate flows to out of city limits customers. In all service agreements executed with customers who have requested water delivery from the City but who live outside City Limits, it is clearly detailed the City of Eureka may curtail or reduce service in water shortage situations. Public information programs designed to alert the public of the shortage will be produced and put out through various media services. Such public information efforts have been successful in the past as evidenced by our citizens who demonstrated their civic involvement by voluntarily reducing water consumption during 1995 and 1996 when the City's main water reservoir was being reconstructed.

3. In the event of Stage IV and V alerts by the Humboldt Bay Municipal Water District, the City will impose water use limits as identified in the Eureka Municipal Code. Section 53.35-53.41 & 53.99 of the Eureka Municipal Code entitled “Water Shortage Regulations” has been included in this Urban Water Management Plan (Exhibit E).

#### **Priority by Use**

Priorities for use of available potable water during shortages were based on input from the local Drought Committee and local citizen groups. The Drought Committee is comprised of members of agencies receiving water from the Humboldt Bay Municipal Water District, emergency response agencies, and District representatives. The Drought Committee activates upon necessity and guide policy decisions for the Humboldt Bay Municipal Water District and its customers in times of water shortages. Water priority allocations have been developed consistent with the following ranking system:

- Minimum health and safety allocations for interior residential needs of citizens and emergency care facilities within City Limits;
- Commercial, Industrial, institutional/government operations (where water is used for manufacturing and for minimum health and safety allocations for employees and visitors) to maintain jobs and the economic base of Eureka;
- Large landscaped areas;
- New connections.

#### **Health and Safety Requirements**

In Stage II shortages, customers adjust both interior and/or outdoor water use in order to meet the voluntary water reductions goal.

Under Stage III through IV rationing programs, the City has established a health and safety allotment of 68 gpcd (which translated to 33 HCF per person per year) because that amount of water is sufficient for essential interior water use with no habit or plumbing fixture changes.

If customers wish to change water use habits or plumbing fixtures, 68 gpcd is sufficient to provide for limited non-essential (e.g. Outdoor) uses. Stage IV mandatory rationing, which is expected to be an extremely rare occurrence in our area, would be declared only as a result of prolonged water shortage or as a result of a disaster, which would require that customers make changes in their interior water use habits. For instance, not flushing toilets unless “necessary” or taking less frequent showers of lesser duration.

#### **Water Shortages Stages and Triggering Mechanisms**

As the water purveyor, the City of Eureka must provide the minimum health and safety water needs of the community at all times. The water shortage response is designed to provide a minimum of 50% of normal supply during a severe or extended shortage. The rationing program triggering levels have been established in conjunction with the Humboldt Bay Municipal Water District. Water shortages at Stages I and II of up to 25 % reduction in supply from the Humboldt Bay Municipal Water District can be accommodated without adverse reductions to customers as the City has historically stayed under our water budget. Water use projections conservatively estimate consumption increasing to

10.9 AF/D in the year 2010. Being this far below our water budget, it is not anticipated that the City will feel the effects of a water shortage, except at the most advanced stages. The City's new 20 million gallon water reservoir provides a stable facility to assist the City in providing water to our customers meeting the minimum health and safety requirements.

The District provided data estimated from the three multiple dry water years, 1989/90 through 1991/92. During that time frame the District still had its entire permitted supply of 84,000 AFY (75 MGD) available for each of the three years. The minimum source water supply volumes for the consecutive three years would still be 84,000 AFY as presented in table 10.

**Three-Year Estimated Minimum Water Supply AF/Y (Table 10)**

Source	Year 1	Year 2	Year 3	Normal
Mad River	84,000	84,000	84,000	84,000

### **Catastrophic Supply Interruption**

Table 11 summarizes catastrophic supply interruption plans that the City has in place to response to non-drought related events.

**Preparation Actions for a Catastrophic Event (Table 11)**

Possible Catastrophe	Summary of Actions
Regional Power Outage	Water System Emergency Operations Plan: Power Outage
System Failure	Operations Plan for Water Supply, Treatment, and Distribution System
Earthquake or Flood	Water System Emergency Operations Plan: Natural Disaster
Acts of Terrorism	Emergency Operations Plan-Security Procedures/ Vulnerability Assessment Plan

### **Prohibition, Penalties and Consumption Reduction**

As previously mentioned, Section 53.35-53.41 & 53.99 of the Eureka Municipal Code entitled "Water Shortage Regulations" has been promulgated to specify consumption reduction methods that will be enforced during a period of water shortage including penalties (Exhibit E).

### **Revenue Impacts of Reduced Sales during Water Shortages**

Reduced revenue is expected during a period of water shortage. The City maintains a reserve fund for such emergencies which would be used to supplement water sale revenue for short term water shortage. In the event of long term water shortage, a fee increase may be implemented to reduce reserve fund depletion and promote water conservation.

All service connections are metered in the City and can easily be compared to historical consumption data to determine actual reduction in water use during a period of water shortage.

## **XII. WATER RECYCLING**

The City of Eureka owns and operates a wastewater collection and treatment facility serving City of Eureka customers and customers in the Humboldt Community Services District adjacent to City Limits. All of the wastewater flows from the City (excluding storm water runoff) are collected and treated at the Elk River Wastewater Treatment Plant.

The City of Eureka utilizes reclaimed water in the processes as its wastewater treatment plant and in the landscaping of this facility. Approximately 75,000 GPD of reclaimed water is used in this manner.

Current wastewater treatment at the Elk River Plant includes the following processes:

- Primary Sedimentation
- Trickling Filter/Solids Contact
- Chlorination/Dechlorination

## **XIII. WATER QUALITY IMPACTS ON RELIABILITY**

The potable water delivered by the District is drawn from wells located in the Mad River. The wells draw water from the sands and gravel of the aquifer located under the riverbed. The gravel and sands through which the water is drawn provides a natural filtration process which yields source water for the District's regional drinking water system that is of very high quality. The results from the District's ongoing water monitoring and testing program indicate that the water quality is very high, as has consistently been the case over the years. As a result, water quality is not expected to affect the water supply or reliability.

## **EXHIBIT A: Public Hearing Notice**

### **EUREKA CITY COUNCIL**

#### **NOTICE OF PUBLIC HEARING**

**NOTICE IS HEREBY GIVEN** that the Eureka City Council will hold a public hearing during the regularly scheduled City Council meeting on **Tuesday, December 20, 2005** at 6:30 p.m., or as soon thereafter as the matter can be heard, in the Council Chamber, Eureka City Hall, 531 "K" Street, Eureka, California, to consider and adopt the 2005 Update to the City of Eureka Urban Water Management Plan. The Plan Update is prepared for the State of California Department of Water Resources. This hearing and plan adoption will establish the City's compliance with the California Water Code Division 6, Part 2.6, Urban Water Management Planning. Copies of the plan are available for public review at City Clerks Office, Room 208, City Hall, 531 K Street, Eureka, CA.

All interested persons are invited to comment on the Plan Update either in person at the scheduled public hearings, or in writing. Written comments on the Plan Update may be submitted at the hearing, or prior to the hearing by mailing or delivering them to the Eureka City Clerk at the above address, with a copy to the City of Eureka Public Works Department. Accommodations for handicapped access to City meetings must be requested of the City Clerk, 441-4175, five working days in advance of the meeting.

Publication: December 11, and December 18, 2005

**EXHIBIT B: Following public hearing input, the plan was adopted by the  
City Council on 12/20/05**

RESOLUTION NO. 2005-59

**RESOLUTION UPDATING THE CITY OF EUREKA'S  
URBAN WATER MANAGEMENT PLAN**

BE IT RESOLVED by the City Council of the City of Eureka, as follows:

WHEREAS, The California Urban Water Management Planning Act (AB797) of the California Water Code requires each urban water supplier with more than 3000 customers to prepare, adopt, and update its Urban Water Management Plan (UWMP) once every five years; and

WHEREAS, the City of Eureka provides water to more than 3,000 customers and therefore is required to adopt five year updates of its Urban Water Management Plan; and

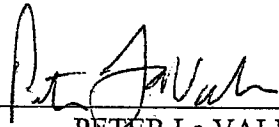
WHEREAS, the City of Eureka adopted an Urban Water Management Plan in 1997, and updated the plan in 2002; and

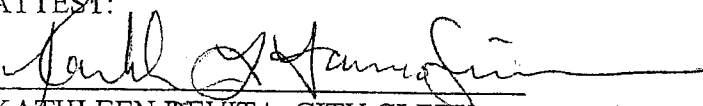
WHEREAS, City of Eureka staff has prepared this update to the 1997 UWMP to be submitted to the California Department of Water Resources.

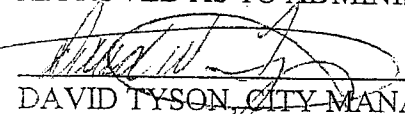
NOW, THEREFORE, BE IT RESOLVED THAT, the Council of the City of Eureka hereby adopts the updated City of Eureka Urban Water Management Plan and authorizes staff to submit the plan to the State Department of Water Resources.

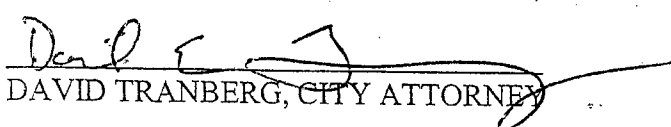
Passed, Approved, and Adopted by the City Council of the City of Eureka, County of Humboldt, State of California on the December 20, 2005 by the following vote:

AYES: COUNCILMEMBERS WOLFORD, BASS-JACKSON, LEONARD, KERRIGAN, JONES  
NOES: COUNCILMEMBERS NONE  
ABSENT: COUNCILMEMBERS NONE

  
\_\_\_\_\_  
PETER La VALLEE  
MAYOR OF THE CITY OF EUREKA

ATTEST:  
  
\_\_\_\_\_  
KATHLEEN DEVITA, CITY CLERK  
*Franco Simmans*

APPROVED AS TO ADMINISTRATION:  
  
\_\_\_\_\_  
DAVID TYSON, CITY MANAGER

APPROVED AS TO FORM:  
  
\_\_\_\_\_  
DAVID TRANBERG, CITY ATTORNEY

**EXHIBIT C: Organization of Municipal Customers of Humboldt Bay Water District**

City of Arcata

City of Blue Lake

City of Eureka

Fieldbrook C.S.D.

Humboldt C.S.D.

Manila C.S.D.

McKinleyville C.S.D.

Jacoby Creek C.S.D.

## EXHIBIT D: Resolution 6784

RESOLUTION NO. 6784

RESOLUTION OF THE COUNCIL OF THE CITY OF  
EUREKA DECLARING NECESSITY FOR ESTABLISHING  
A VOLUNTARY ASSOCIATION OF MUNICIPAL USERS  
OF THE HUMBOLDT BAY MUNICIPAL WATER DISTRICT,  
AND AUTHORIZING PARTICIPATION IN SAID  
ASSOCIATION

WHEREAS, the potential of a water shortage in the territory served by the Humboldt Bay Municipal Water District presently exists and may recur at some future time; and

WHEREAS, the Humboldt Bay Municipal Water District (HBMWD) has proposed to unilaterally change its existing contracts for water service with its municipal and industrial customers; and

WHEREAS, the municipal customers of HBMWD have not previously organized formally as a group to deal with common problems relating to potential water shortages and terms and conditions of water service by HBMWD under separate contracts for such service with each municipal user; and

WHEREAS, in the opinion of the Council of the City of Eureka, it is desirable that municipal users formally organize as a voluntary association to deal with common problems affecting their contractual rights and obligations to water service by the HBMWD, and that each such user be encouraged to join with the City of Eureka in establishing such an association;

## EXHIBIT D: Resolution 6784 Continued

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Eureka as follows:

1. That upon concurrence by not less than three of the following named municipal users, an association of users, provisionally called "Humboldt Bay Water Users Association", is established:

- (a) City of Arcata
- (b) Humboldt Community Services District
- (c) McKinleyville Community Services District
- (d) City of Blue Lake
- (e) Manila Community Services District
- (f) City of Eureka
- (g) Fieldbrook Community Services District
- (h) Jacoby Creek County Water District

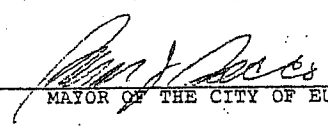
2. That the City of Eureka hereby consents to become a member of said association, and shall be represented thereon by the Mayor or a member of the Council.

3. That the purpose of the association is to establish a method through which municipal contract customers of HBMWD, on a continuing basis, by association, consultation and study, may be benefitted in dealing with water supply and distribution problems which are of common interest.

4. The City Clerk shall certify the establishment of the association upon receipt of the concurrence of other users as set forth in this resolution.

Passed, approved and adopted by the Council of the City of Eureka, County of Humboldt, State of California, on the 21st day of June, 1977, by the following vote:

AYES:	COUNCILMEN	Howard, Goodwin, Cobine, Reardon, Mengel
NOES:	COUNCILMEN	None
ABSENT:	COUNCILMEN	None

  
\_\_\_\_\_  
MAYOR OF THE CITY OF EUREKA

## EXHIBIT E: Sections 53.35-53.41 & 53.99 of the Municipal Code; "Water Shortage Contingency Plan"

### Water

#### WATER SHORTAGE REGULATIONS

##### 53.35 PURPOSE.

(A) From time to time it may be necessary that Council declare that a water shortage emergency condition prevails in the area served by the city. During such Council-declared water shortages, this chapter is intended to allocate equitably the water available to human consumption, sanitation, and fire protection.

(B) The specific uses regulated or prohibited in this subchapter are nonessential and, if allowed, would constitute wastage of water and should be prohibited pursuant to CAL. WATER CODE §§ 350 et seq. and 71640 et seq. and the common law.  
'63 Code, § 5-7.01 (Ord. 274-C.S., passed 5-17-77; Am. Ord. 465-C.S., passed 12-31-87)

##### § 53.36 DEFINITIONS.

For the purpose of this subchapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

**CITY.** The City of Eureka, California.

**COUNCIL.** The elected Council of the city.

**CUSTOMER.** Any person using water supplied by the city.

**MANAGER.** The City Manager of the city.

**NONESSENTIAL USE.** Any use not required for human consumption, sanitation, or fire protection.

**NONESSENTIAL USER.** Any user other than a domestic residential customer or facility providing for health and safety.

**OUTDOOR SURFACE.** Any patio, porch, veranda, driveway, or sidewalk.

**PERSON.** Any person, firm, partnership, association, corporation, company, or organization of any kind.

**WATER.** Water from the city.  
'63 Code, § 5-7.02 (Ord. 274-C.S., passed 5-17-77; Am. Ord. 465-C.S., passed 12-31-87)

### Eureka - Public Works

##### § 53.37 APPLICATION.

The provisions of this subchapter shall apply to all customers using water both in and outside the city, regardless of whether any causing water shall have a contract for water service with the city.  
'63 Code, § 5-7.03 (Ord. 274-C.S., passed 5-17-77; Am. Ord. 465-C.S., passed 12-31-87)

##### § 53.38 LARGE WATER USERS.

No person whose historic monthly average water use of any three-month period exceeds 50,000 gallons per month, called "large water user" in this subchapter, shall irrigate, sprinkle, or water any shrubbery, trees, lawns, grass, ground covers, plants, vines, gardens, vegetables, flowers, or any other vegetation except as assigned by the Manager after consultation with individual large water users.  
'63 Code, § 5-7.04 (Ord. 274-C.S., passed 5-17-77; Am. Ord. 465-C.S., passed 12-31-87) Penalty, see § 53.99

##### § 53.39 SITE DESIGN REVIEW.

While this subchapter is in effect, no planting or landscaping required by the design review process or other city action shall be implemented unless the Manager determines that the health, safety, or welfare of the public might be endangered.  
'63 Code, § 5-7.05 (Ord. 274-C.S., passed 5-17-77; Am. Ord. 465-C.S., passed 12-31-87) Penalty, see § 53.99

##### § 53.40 RUNNING WATER PROHIBITED.

No person or customer shall cause or permit any water furnished to him by the city to run to waste in any gutter or otherwise.  
'63 Code, § 5-7.06 (Ord. 274-C.S., passed 5-17-77; Am. Ord. 465-C.S., passed 12-31-87) Penalty, see § 53.99

##### § 53.41 NONESSENTIAL USES; LIMITATIONS.

###### (A) Prohibited.

(1) Whenever the Manager determines that the water available to the city is insufficient to permit nonessential uses and that all water then available to the city should be used solely for human consumption, sanitation, and fire protection, he may order and direct, individually or collectively, that nonessential uses shall not be permitted by any person or customer. While such order is in effect, no person or customer shall fill with city-furnished water any swimming pool, wash any car or any

# **EXHIBIT E: Sections 53.35-53.41 & 53.99 of the Municipal Code; "Water Shortage Contingency Plan" Continued**

## **Water**

indoor surface, irrigate, sprinkle, or water any shrubbery, trees, lawns, grass, ground covers, plants, nes, gardens, vegetables, flowers, or any other vegetation, or allow any other nonessential use of water as designated by order of the Manager. Violations shall be punished as set forth in § 53.99(B) of this chapter.

(2) The Manager shall use every available means to inform customers that such order is in effect.

'63 Code, § 5-7.07)

(B) *Limited amount of water delivered to customers.* Whenever the Manager determines the water available to the city is insufficient to meet the demands of customers of the city and that all water available to the city should be protected for human consumption, sanitation, and fire protection, he may order that limits be imposed on individual consumption as determined and specified by resolution of the Council, including penalties in addition to those set forth in § 53.99(B) of this subchapter. ('63 Code, § 5-7.08)

Ord. 274-C.S., passed 5-17-77; Am. Ord. 465-C.S., passed 12-31-87) Penalty, see § 53.99

## **§ 53.42 ENFORCEMENT.**

(A) Each police officer of the city, in connection with his duties imposed by law, shall diligently enforce the provisions of this subchapter.

(B) The Manager and all employees of the city shall have the duty and are authorized to enforce the provisions of this subchapter and shall have all the powers and authority set forth in CAL. PENAL CODE § 836.5, including the power to issue written notices to appear.

'63 Code, § 5-7.10) (Ord. 274-C.S., passed 5-17-77; Am. Ord. 465-C.S., passed 12-31-87)

## **§ 53.43 OPERATIVE DATES.**

(A) This subchapter shall become operative each time the Council by resolution declares that a water emergency condition prevails pursuant to CAL. WATER CODE, §§ 350 et seq.

(B) This subchapter shall become inoperative from the time when the Council by resolution determines that a water shortage no longer exists until the Council, if ever, subsequently declares that another water shortage prevails.

'63 Code, § 5-7.11) (Ord. 274-C.S., passed 5-17-87; Am. Ord. 465-C.S., passed 12-31-87)

## **§ 53.44 DISCONNECTION FOR VIOLATION.**

The Manager shall forthwith direct and cause the disconnection of the water service of any person or customer cited for a misdemeanor under this section. Such service shall be restored only upon the payment of the turn-on charge fixed by the Council, as provided in this code.

'63 Code, § 5-7.09) (Ord. 274-C.S., passed 5-17-77; Am. Ord. 465-C.S., passed 12-31-87)

## **§ 53.99 PENALTY.**

(A) Any person found to be in violation of § 53.18 of this chapter shall be charged a penalty fee of \$50 in addition to such fees as are determined in accordance with § 53.18 of this chapter. ('63 Code, § 5-6.22) (Ord. 140-C.S., passed 7-1-70; Am. Ord. 269-C.S., passed 1-21-77)

(B) (1) Except as otherwise provided in this chapter, violations of any provision of this chapter shall be punished as follows:

<i>Violation</i>	<i>Classification</i>	<i>Penalty</i>
First violation	Infraction	\$10
Second violation	Infraction	30
Third violation and subsequent violations within a six-month period	Misdemeanor	100

(2) Each day any violation of this chapter is committed or permitted to continue shall constitute a separate offense and shall be punishable as such hereunder. ('63 Code, § 5-7.09) (Ord. 274-C.S., passed 5-17-77; Am. Ord. 465-C.S., passed 12-31-87)